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INAUGURAL ADDRESS

DELIVERED AT THE

ROYAL MEDICAL SOCIETY,



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BY

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INAUGURAL ADDRESS.

MR PRESIDENT AND GENTLEMEN,—When I was invited to deliver the Inaugural Address on this occasion, both my first and second thoughts were to decline the honourable but arduous task. For not only did I feel myself unequal to it at the best of times, but the anticipation of a special pressure of work during the vacation made it certain that I could not do it justice. That I consented was due to the fact that I felt that this Society had a right to command any feeble services which I could render, having conferred upon me what I esteem as one of the greatest honours of my life, that of becoming one of its Honorary Fellows—an honour which, so far as I am aware, I have never done anything either to deserve or to repay.

The light in which I regard this Society probably differs from that in which it is viewed by most of you; for in past years I dwelt in a city where this University and Medical School were but little known, and were greatly misconceived. But in the obscurity enshrouding the little known, and so far as known much reprobated, Medical School of the North, there shone out one bright particular star, one redeeming feature. A graduate in medicine of this University, or a licentiate of the Colleges, whatever distinction he might have attained, had as such no honour; but a man who had been a President of the Royal Medical Society, and still more a Senior President, whatever that mysterious distinction might import, was regarded as of necessity a man of mark, and as one who had a passport to fame. This, and this alone, far outweighed and superseded any other testimonial in competition for an appointment. It is easy, then, to understand how deeply I felt the honour conferred upon me by this Society. Fate had for ever debarred me from the possibility of becoming a president, but such alleviation as was possible you afforded me.

The enormous prestige and world-wide reputation enjoyed by this Society are well grounded. When one glances at the roll of past Presidents, and others who have been prominently connected with it, one cannot but be struck with the familiarity of the majority of the names. These men have become known to fame by their discoveries or their writings, and few have failed to justify in after life the opinion formed of them by their fellow-students.

This Society has just completed the 150th year of its more definite existence. Its reputation has become matter of common notoriety. Nowadays, however, antiquity and historical reputation mean little or nothing. We live in an age which is largely destructive in effect, though constructive in intention. Much that is worn out and useless is destroyed, but much, too, which can never be rebuilt or restored. But as things are it is often safest to say little about antiquity, lest the iconoclast's hammer should be upon us. Nor in any case is it wise or safe to rely on the past. In a Society like this everything depends on the present. We must advance with the times; or the times, which after all can get on very well without us, will go on and leave us behind. Adaptation to new circumstances, fresh developments to meet new needs, are essential.

I am not without fear that even the Students' Union, much as we desire its success, may for a time have a prejudicial effect upon this Society. Not that it will at all take its place as a centre of thought or scientific activity, but that some may feel that they cannot give the time or the money to both institutions in their functions as reading-rooms or social resorts. It will, then, be necessary for this Society in every possible way to increase and maintain all the advantages for study and research which it affords, as well as to promote its more special work.

But, after all, what constitutes the strength of a Society like this, and its surest ground of success, lies in the men who have composed and do compose it. It is a human, and therefore a living association, bound to the past by the character and life of those who have lived in it, and to the present by the friendship and co-operation of living members. So long, therefore, as the character and ability of its leading members are such as they have been, it cannot fail. Three of the strongest motive forces to influence the human spirit are united in its support—hero-worship, co-operation, research. Let me say a few words on two of these—hero-worship and research.

It may seem strange to you that I should put hero-worship first. It is so historically, and I believe that it is in fact one of the most powerful motive forces affecting every man's life. In all professions and sciences this is true, and in Medicine—the most human of professions—this most human tendency is seen at its strongest; and I believe that, if rightly directed and properly restrained, it is one of the most powerful influences for good.

It may be alleged that I am mistaken as to its frequency and influence, that nowadays every one thinks and investigates for himself independently, and that the maxim, "*Nullius in verba magistri jurare*," is firmly ingrained in every student from his youth up. It may be perfectly true that there is now little nominal respect for this or that authority. In the old days the pupils of every noted teacher or healer spoke of him as their master, and were proud of their connexion with him. His dicta

were quoted and regarded with superstitious reverence. Every one knows how the sayings of Hippocrates, Aristotle, Galen, Avicenna and Averroes, Sydenham, and others, were followed long after their death, and how rival schools under lesser lights waged terrible battles for or against some theory of disease or mode of treatment.

But the historian of the future will find in this present age precisely similar facts, so little does human nature change. He will tell of the battles between the schools of Virchow and of Cohnheim; of the great trio of heroes, Pasteur, Lister, and Koch; of the long battle waged between the followers and opponents of the antiseptic system, and of its ultimate triumph. Or, going further back into a now remote period, he will tell of the struggle which preceded the abandonment of bleeding as a common means of cure, of the introduction of anæsthetics, and of the discrimination of various forms of continued fevers. And in every case there will be the same tale—the leader or leaders of progress, its opponents, and their respective followers. It is the law of Nature, men must be bound together in progress, and the strongest and tallest will lead, and be acknowledged as leader.

But it is not exactly in this light that I wish to speak of hero-worship; nor when I use the term do I mean that blind idolatry which is often connoted by the expression. The Darwin cultus, for instance, which consists in intense admiration of his great genius, his earnest, patient, scientific investigations in the midst of suffering, of his acuteness in observation, his skill in planning and carrying out experiments, and his honesty and modesty in regard to his work, is the very opposite of that blind adoration which accepts his speculations as laws of the universe, and his tentative suggestions as infallible dicta.

I believe that every man should have a hero, or more than one. I never met any man who had done anything considerable in life, and who was himself looked up to as a leader, who did not (if one had the opportunity to discover it) reveal the fact that he had at least one hero. For the most part the hero was some one who had, by direct teaching or personal example, communicated something of his own character or vitality. But I have known one whose hero was Hippocrates, and I have heard of another in whose gallery John Hunter was most notably enshrined.

Now, I do not see why hero-worship should not be regulated and cultivated both by the individual and the society. For the individual it may be that the hero, like the poet, *nascitur, non fit*. There must be individual adaptation and recognition. And on this I will only say, be sure that you have at least one hero. You may, indeed, have several—one for your personal life, another for your public life, and yet another for your scientific and medical life. And as the medical hero is especially my subject, let me caution you not too readily to take your professional hero, but to make him

first the subject of some study. Be sure that he is taller than yourself. Let him be large enough to appear life size to you when you have put him on a pedestal, and let him be some one whom you will be likely to be able to follow for at least ten years of your professional life. I know, indeed, that one must occasionally revise one's list. O. Wendell Holmes speaks of dropping a friend overboard every now and then in the course of life, to see how fast one is progressing, just as in heaving the log at sea ; and one may need to drop a hero in the same way, or to take on another. The best kind of leading hero is one who combines various qualities, whose character and life are an example and a stimulus, whose scientific energy and method give an impetus to your own, and whose achievements make him respected by others as well as yourself.

I think this Society would do well to cultivate the memory of its heroes. You have here not merely the record of their names, but the beginnings of their work ; you can trace back to the early germs the ideas and methods of work which were fruitful in their after life. In these somewhat forbidding and dull looking volumes of Dissertations you will find the piece of work which, perhaps, was that to which the man ever after looked back as his best, because done with all his youthful freshness and enthusiasm.

I have often thought that on some such opportunity as this I would try to present you with some record of those whom I have known intimately, but who have now passed away, who were in their time Presidents of this Society ; but I will only venture to say a little of one who is especially worthy of record—Charles Murchison. Murchison's name is, indeed, commemorated by his works and by the Scholarship in Clinical Medicine bearing his name, which is annually awarded alternately in Edinburgh and London. But, by some strange mischance, no record of Murchison's life and work has been written beyond the newspaper notices at his death. I desire to do no more than to lay a stone upon the cairn to his memory, all the more as I find that his connexion with this Society is but little recalled.

Twenty years ago, when I was a student in London, there were very few systematic clinical teachers of medicine in London, and of these few four stood out prominently in the estimation of students and of foreigners—Jenner, Gull, Murchison, and Wilson Fox. The teaching methods of Jenner were, I think, the result of his own innate genius and sagacity, and he stood then, as now, *facile princeps* amongst his compeers as a physician. Murchison and Wilson Fox both followed to a large extent the mode of systematic observation and analysis in clinical teaching which has long been followed in Continental, and especially in the French schools. Both derived it, I believe, immediately from Edinburgh, where it had especially been carried out by Professor Hughes Bennett. My revered master Wilson Fox was for a year Resident Physician in the Royal Infirmary under Hughes Bennett at the time of the

Crimean War. Wilson Fox's mode of teaching was, however, considerably modified by Jenner's influence; there were the same touches of intuition, of personal experience, of genius, which made Jenner's ward visits impressive for a lifetime.

Murchison's method of teaching was purely logical and deductive, his system of diagnosis apparently immutable, and governed by the strictest laws. At first there was to me something unpleasant in this absolutely dogmatic method, in which everything appeared to be cut and dried. Nor was I for a long time at all impressed with the teacher. There was a coldness and a somewhat sarcastic mode of address which tended rather to repel than to attract, and it was in spite of this that he was followed and admired. It was only as one came to know him better that one saw that this was only manner, and that under the cold, critical, logical exterior was one of the truest hearts that ever beat.

Although I had occasionally as a student attended Murchison's clinics at the Middlesex Hospital, it was not till four or five years later at St Thomas's Hospital, when I was Medical Registrar, that I came to see more of him. My first close contact with him arose through a case in which a strong difference in diagnosis happened to arise, and in the discussion of this case and its sequel I learnt both Murchison's tenacity and his generosity. From that time he was my generous and constant friend. In many long conferences with him afterwards, I soon discovered both his sagacity and profundity as a physician.

No man whom I have ever known united such keen insight and such minute accuracy of observation. His memory for cases was astounding. He seemed never to forget any noteworthy case he had seen; he remembered it, too, in every particular, and with the most vivid clearness. In his clinical teaching he would not go a step beyond the point to which he could lead the student. Every possibility must be minutely balanced, and the case decided on the clear laws of evidence. True, the diagnosis might sometimes be wrong, and his insight as a physician might lead him to see that it was probably inaccurate; but for the student it was safest and surest, and would teach him to diagnose correctly in the great majority of cases, and to recognise more clearly the grounds of error in diagnosis. But take Murchison outside his class, and discuss the same case. No longer the same rigid dogmatic rules, but case after case bearing upon the one in question, a mine of wealth of clinical observation tempered by the soundest judgment. How well I remember the last of those talks when, a day or two before his death, I met him in the corridor at the end of his hospital visit, fagged, depressed, and worn out. Some question on a case in which we had a common interest arose, and for nearly an hour he stood discussing and illustrating it with other cases with the greatest animation, forgetting fatigue in the intensity of thought.

I have mentioned as one of Murchison's characteristics his stead-

fastness. If he was outwardly somewhat cold, he was clear and transparent and truthful as the day. The Aberdonian tenacity of character which led him to hold so firmly to what he had observed made him equally certain as a friend. One always knew that one could reckon upon his friendship. In how many ways he helped me I never could tell, for he never, when it could be avoided, let me know that he had any hand in it. But I knew enough to know that he never lost any opportunity of helping me in every way in his power.

But I fear you will think that I am misusing this opportunity to give you too much of my personal experience, although I know not how otherwise to give you an adequate idea of the man. Let me hasten to tell you something more of Murchison as a student.

Of his student life I know but little. Many of his fellow-students and friends still living can, if they will, tell of it. Entering the Botany Class in the summer of 1847 at the age of 17, he soon acquired a character as an enthusiastic observer and investigator, and gained the warm friendship of Professor Balfour, who often corresponded with him afterwards on botanical subjects. Apart from his high character and the position he took in classes, he was known chiefly as a quiet student, always studious, always at work at something. Making but few friends, he succeeded in selecting four or five who have since become men of world-wide fame, and who still cherish his friendship as one of the best of their lives. In 1850 he became house-surgeon to Mr Syme, and in 1851 took his M.D. degree, gaining a gold medal for his thesis on Tumours. It was during the session 1850-51 that he was a President of this Society.¹

His first paper in this Society, so far as recorded, was read on 14th December 1849 (vol. iii. p. 307), and was on the Red Corpuscles of the Blood. The second, read 22nd March and 5th April 1850 (vol. iii. pp. 827 and 957), is a most elaborate monograph of 134 pages, on the Anatomy, Physiology, and Pathology of the Spleen. The latter affords an admirable example of the character of Murchison's mind and the method of his work. It is practically a thorough examination of all that was known upon the subject until within a short period before it was written. First we have an admirable bibliography, arranged chronologically, going down to the year 1832, and including 73 papers. Then an exhaustive account, largely compiled, of course, of every point of importance in relation to the anatomy, the pathology, and the functions of the organ. One may especially notice as characteristic the enormous industry, the methodical arrangement, the clearness of thought and expression on every point, so that one can have no doubt as to the writer's meaning. Then one is struck by the fact that, whilst every authority has been studied, and their facts brought forward

¹ I am indebted to Dr Dobie of Chester for much valuable information upon Murchison's early life.

in due place and order, each has been weighed and judged. And although the paper is largely a compilation, there are few points on which he himself had not by dissections, injections, and microscopical examination, made original observations and formed his own judgment.

The same qualities were apparent in a more highly developed degree in his later work. As an example of his industry and method, the record of every case which was under his care at the Fever Hospital was, so to speak, dissected, and every symptom, its order and time of appearance, etc., was recorded by himself in a most elaborate schedule, systematically arranged, so that when one had any unusual complication or condition in a fever case, one had only to ask Murchison if he had ever seen it, and he could at once put his finger upon the record. No one who has not attempted it can tell what labour this involves, when it comes to hundreds of cases recorded as Murchison did them. But it is largely to this that the great value of his classical work on Continued Fevers is due. Yet in this, as in everything, like a calm and deep lake, so pellucid and placid was his mind, that you hardly realized the depth until you tried to fathom it.

Of Murchison's later career in London, his work, his life, and his sudden death, I cannot now speak. It ought to be done; but it should be done by some one who knew him better. Apart from his two great works on Continued Fevers and on Diseases of the Liver, his contributions to pathology and medical literature were voluminous. As a pioneer in investigation, and by the encouragement and aid he gave to others, he gave great impetus both to pathology and medicine. But I am not qualified for the task of recording his labours or the ennobling influence of his character and life. The record should be written, and there are friends still living who could do it. Even in what I have said, I know I have failed to do him justice, perhaps because he was never my hero, only a kind and generous friend. But in his life and work you have only a sample of the many heroes of this Society. Their early work is not only of intense interest as a study, but of value as a stimulus and an encouragement to yourselves. Cherish, then, their memory, and emulate their labours.

[The following testimony, coming as it does from one who knew Murchison intimately throughout the greater part of his medical career, will carry weight far beyond any words of mine. Professor Gairdner, in a letter in reply to a request for any additional particulars before publishing this address, wrote as follows, and has kindly allowed me to print here some extracts from his letter:—

“There may have been men superior to him in genius and even in dogged laboriousness, but very few men indeed have had the combination of quick and clear insight on the one hand, and exhaustive mastery of details on the other, that was in him.

This quality of steadfastness held with him to the very last, and was applied to his own case as much as to the cases of other people. I never knew any one to equal him in his power of reading up and thinking out a subject, and then pigeon-holing everything that he had observed and read and thought, so as to be infallibly in its right place. His book on Fevers is in this respect absolutely unrivalled, and having been accustomed to use it as a handbook off and on ever since its publication, I can scarcely remember an occasion on which I have referred to it in vain, whether I agreed with him or not. Even the slight variations between the first and second editions—at ten years' interval—show the same minute carefulness and, as you have justly called it, *steadfastness*. One might have thought that between 1863 and 1873 he might have tired of the subject of Fever, after having given it so much of his time, which was then becoming more valuable in a pecuniary sense; but having had a good deal to do with the changes of opinion going on during that interval, I can bear testimony that there is not a change (otherwise than merely verbal or clerical) in the text of the book that is not significant; and scarcely a point at which changes might have been made at which they have not been made, so as to indicate the movement going on in connexion with the whole subject. Some of these minutiae of detail will be brought into notice in a volume I have in the press. All of them will show how minutely and steadfastly he did his work up to the very last.

"Mrs Murchison sent me, some time after his death, a number of details about his own illness which he had put on paper. I did not consider them of any great novelty or scientific importance, otherwise I would have published them ere now. But what they do show is that, even when looking illness and death in the face, he was not bereft of his instinct for seeing *the truth*; and the personal bias in no way interfered with his desire that everything should be placed exactly in its right position, in estimating the facts with respect to diagnosis and prognosis.

"In the autumn of 1872 he came down to Scotland to consult me as to the aortic lesion which had then become known to him as certainly existing; and his *one* anxiety was as to whether I could throw any light on the very serious issue, How long he might hope to live? I never was in London after this without seeing him; and only a short time before his death he told me that he had got through his winter work with more ease than he expected, and had never had so much remunerative work to do.

"You will find some allusions to this in a few remarks made by me, and printed in the *British Medical Journal*, August 2, 1879, p. 193."]

Another of the functions of this Society of which I wish to speak is, to aid and encourage research. It may be said that in

the modern sense in which the term 'encouragement of research' is often used, *i.e.*, the giving of money in aid of or as a prize for research, this Society does nothing. But I hold, and I am sure that those who have seen much of such encouragement will agree with me, that money is that which does least for true research in any branch of science. Money may be needed for apparatus and costly experiments, or for leisure and independence, but it rarely supplies the motive force; indeed, alone it is inert.

The stimulus to research comes first from that innate longing to discover truth, to pry into the secrets of existence, which is as much a part of our nature as love or wonder. The youngest child is endowed with it—in varying degree, if you like, but it is there. Very often it is almost entirely suppressed by bad education, or by other ambitions and interests, but to some degree it lies dormant in every man; and the medial man who is devoid of it is a *lusus naturæ*. In many men it is so strong that it cannot be suppressed, it will out. With Browning's Paracelsus they say,—

“ I cannot feed on beauty for the sake
Of beauty only, nor can drink in balm
From lovely objects for their loveliness;
My nature cannot lose her first imprint;
I still must hoard and heap and class all truths
With one ulterior purpose: I must know!”

Browning's *Paracelsus*, p. 95.

None the less is it true that in a great majority of men it needs to be elicited or excited, and in nearly all to be trained and cultivated.

What, then, are the factors which stimulate investigation, apart from the innate desire to discover and know? One is the presentation and discussion of numerous subjects which afford points of dispute or difficulty. Another is the opportunity of publication, and especially of publication where free discussion and criticism are possible. Add to these the influence of example, and you have a very large part of the factors which do practically stimulate research.

But a word more as to money. A man *may* do anything for money. But, practically, unless a man has all the qualifications of a researcher, and has already mastered his methods and subject also to a large extent, he can no more do a research for money than the average man could compose a sonata; or at least it would be of equal value. I know that examples will be cited to the contrary. M. Pasteur, I believe, made his remarkable investigation on “Pébrine,” the disease of silkworms, under the promise of a large reward. But any one who knows anything of Pasteur will know that he was already a master workman, that his immense energy and patience were devoted then, as always, to the solution of the scientific problem, and that the intensity and concentration of his work in that research cost him the use of one arm, and nearly cut short his labours, if not his life; and, as his subsequent

career has shown, he values neither life nor money, except as a means to the promotion of science and the benefit of living beings. Even those discoveries which have been the most profitable as means of making money have rarely been utilized for money by their discoverers. "Sic vos non vobis mellificatis apes," it is the old story.

In the case of discoveries in relation to medical science it is not expected or desired that money should be the incentive; and where it has been, the supposed discoveries have usually proved to be fallacious and worthless. On the other hand, it is sometimes thought that the sole intended *object* of medical research is the benefit of humanity. We may, if we please, lay this flattering unction to our bosoms, but it is not strictly true. The idea may encourage and console us, but the stimulus is really much the same as in all other scientific work. I do not believe that pure benevolence would suffice to sustain any discoverer. The longing to know, the desire of power over the forces and secrets of Nature, these, too, must co-operate and predominate.

Amongst the functions of this Society in the promotion of research is the bringing forward of subjects which demand inquiry. We are not independent of one another or of external stimulus. Thought is free, but most of it, if not all, is induced—a secondary current. Spontaneity of thought is rare, some would say impossible. How few men can pass, say one wet day, in a solitary Alpine hut, alone, without feeling unutterably bored. Even the greatest of men, with many years of experience and thought behind them, often become mentally inert and insipid under such conditions. I remember a learned bishop, one of the greatest living commentators, who was detained in such a hut during a storm of two or three hours, alone. His sole subject of thought and reflection, as he told us, was found in a scrap of paper with a highly eccentric and truly German spelling-pronunciation of the word "Jane" which he found in the hut. Nor is such mental inertia a rare or morbid phenomenon. It is one of the laws of the mind. I know that it has been said that genius is the faculty of lighting one's own fire, but such genius is rare. Let me give you a little of my own experience. Nothing is commoner than to have inquiries addressed to one as to what subject one would recommend for a research. The usual formula is, "I intend to spend a year in scientific work either here or abroad, and to work up a thesis, will you tell me a good subject?" Of course one tries, and first one inquires as to any special proclivity for subject or method of research. "Oh, I have no choice whatever; anything you like." Then one makes an effort to discover what special capacity or training is possessed, and rarely elicits a confession of some peculiar gift. And, lastly, one suggests various subjects, and offers such help as one may be able to give. But, as a rule, it ends in nothing. The subject is too difficult or too long, or the

material is not at hand ; in fact, the one vital spark of special interest and desire is wanting, and the molehill becomes a mountain. In truth, you cannot manufacture a research—it is a living thing, and must grow.

Gentlemen, far be it from me to ridicule such desire for research. I only point out what is and what is not possible, the right and the wrong method. What I usually say to such men is,—“ Well, if you have no desire to investigate anything in particular, come and learn methods and do some definite piece of work, for which I will find you the material and guidance.” Then, if a man has any capacity for research, he will meet his subject by the way, and fall in love with it. Matrimonial agencies are as little productive of successful research as they are of happy marriages.

In this Society the constant presentation and discussion of various topics brings before the members a succession of moot points, of obscure problems, some one of which must either strike the curiosity or suggest other subjects of inquiry. Even the spirit of opposition to some dogmatic assertion will very frequently serve as the starting-point. Indeed, but for the innate spirit of contradiction of established dicta, I know not how medical science would progress at all.

I believe it to be also a most valuable training to be compelled to write on some subject selected by others. We never know how little we know, even of a common subject, until we begin to try to present our knowledge to others; and however distasteful or remote the subject may be, it is not lost time. When a man knows a subject thoroughly, and has written all he knows, he should never be allowed to write upon it again. Some of the worst student's manuals are written by great authorities on the subjects of which they treat.

Again, the opportunity of publication, especially where the work can be freely discussed, is a great stimulus to research. Few men would go on working unless they hoped to make the results of their work known to others. The mere acquisition of knowledge for one's self is indeed precious, but gold is useless unless coined and spent, and even the miser hopes some day to enjoy his wealth. True, he may and must leave his wealth to others; but the scientific miser has little such prospect. To begin with, his knowledge will probably not be current or usable in the next generation unless it is circulated in this; and very few can or do succeed in putting more than a fraction of their work into circulation. What piles of manuscript, what stores of knowledge, the fruits of long years of patient observation, thought, and labour, go to the dust bin or wastepaper merchant, or are accumulated to turn yellow and grimy with age and dust, after the death of any man who has been engaged in scientific or medical research! Rarely, indeed, they are rescued by some later worker or bookworm, and used commonly to throw as dirt at some fresh and independent

discoverer. Witness the Italian opposition to Harvey. Or, rarely, a man may be his own resurrectionist, like a distinguished opponent of Colnheim's discoveries on the circulation. Most men leave, for lack of time and energy, much of their best work unpublished; and the best of all, the experience and judgment, ripened by long thought and work, die with them. Now, I do not say this to encourage hasty or premature publication. Young men are often advised to publish *something* as soon as they can—to bring them into notice. Well, *practice* and money may be made by advertising; reputation is not, and it may be ruined. But the great advantage of publishing your ideas in a Society like this is that it is free of all suspicion of ulterior object, and that you may bring imperfect and tentative observations forward to the light of suggestion and criticism.

A few words more, gentlemen, on the subject of research, and I have done. First, every man, even as a student, should have some research on hand, something which he cultivates and speculates and observes upon. It will stimulate all other work, and afford relaxation and interest outside your regular routine of study—will, indeed, introduce scientific spirit and method into study of every kind.

Let your subject be your own, one which commends itself to you as a worthy one, and as one at which you can and will do good work. As to its results, be they ever so small or indefinite as bearing upon the direct healing of disease, they cannot be valueless as a training; and if the work is good and the results new, they must be of a value which can only be discovered afterwards. If one traces the progress of any branch of science, one meets with numberless instances of a minute and accurate piece of observation or investigation which has been the germ of a revolution. Nature's locks are large and strong, but the keyholes often exceeding small, and the key simple enough to him who can find it.

If you cannot find a new subject, follow some leader, and master his work as far as you can. You will find problems enough to occupy you as you go along, and when you reach the end of his work you can still go on. You will have the additional stimulus of the human elements of admiration, of example, and influence, which are, after all, the greatest living forces. Do not be too anxious lest your subject should be one which some one else has already worked out or is engaged upon. It is almost impossible to start an entirely new and independent inquiry—

“While you thought 'twas you thinking as newly,
As Adam still wet with God's dew,
You forgot in your self-pride that truly
The whole past was thinking through you.”

Heartsease and Rue, Lowell, p. 134.

The same forces which are working upon your mind are active upon others; you are being carried forwards by the stream of tendency of thought and by the previous labours of others, and so

are many more. You *may* become topmost on the crest of the wave, but you may chance to see another more fortunate or better endowed by Nature or opportunity above you—

'Tis in the advance of individual minds
That the slow crowd should ground their expectation
Eventually to follow ; as the sea
Waits ages in its bed till some one wave
Out of the multitudinous mass, extends
The empire of the whole, some feet perhaps,
Over the strip of sand which could confine
Its fellows so long time : thenceforth the rest,
Even to the meanest, hurry in at once,
And so much is clear gained.

That is the law of scientific progress. But the majority of investigators form the "multitudinous mass."

Nor, I think, should you be at first too anxious to find all that has been written upon the subject you select. Literary research is indeed most important, and I would on no account justify its neglect. You must, indeed, study the works of leaders ; and the habit of thorough study and comparison of the written records on any subject is a most valuable one. But there is nothing which more discourages a man, especially at first, when he is seeking direct contact with Nature, than to be sent to wander amongst the tombs of buried researches. In many cases it will suffice, if, before you give your work to the world, you decently exhume them and set their skulls, properly labelled, in decent order in that mortuary, or rather ossuary, which is usually known as a bibliography. I know that in saying this I run counter to the fashion and to the strongly-rooted beliefs of many whom I respect ; but I can tell you, from my own experience, that the attempt to carry out their precepts rigidly may and does act as an almost absolute barrier to publication. I was educated in the belief that it was one of the seven deadly sins to publish until one had gone over the literature of the subject, and seen *all* that had been done before. Nor can I, in spite of my acquired belief that it is a venial sin, so far overcome my training or quiet my distorted conscience as to do it in cold blood. On the other hand, when one is occupied in observing, investigating, and recording one's own observations, it becomes more and more impossible to do the work of a gravedigger at the same time. Therefore I am anxious to some extent to free you from this bondage of what is, in great measure, mere literary pedantry. At any rate, carry on your direct questioning of Nature side by side with, or rather in advance of your literary work, and let this serve you as a guide and stimulus and not as a chain. But do not claim priority of discovery until you are sure that no one has preceded you, and for this you must exhaust the records.

Yet another caution as to the spirit of your work. Be content to go by degrees, and if need be slowly. Scientific research is

much like Alpine climbing. You see before you a summit which leads to your ultimate destination, and with slow and steady steps you push on till you reach it. Then yet another appears, entirely concealing your peak, and this surmounted, others come, each of which must, still with painful toil, be attained; and it may be that after all the day is too short, and you find the night fall with the snowy peaks still far above you. But you have so far discovered the road, and even if *you* do not succeed, others will come, and guided by your tracks will get higher and higher. Wait a year or two, and where you had only marshy swamps or dense thicket there will be a carriage road; where you had loose boulders or slippery moraine, there shall be a good beaten track with steps here and there; and it may be, that if your mountain is a very special one, it shall be favoured with a railway and a hydraulic elevator. But you have, at least, made the ascent possible, and the track is certain, easy, passable for all.

Nowadays, however, many men prefer to do their scientific climbing in a balloon. They sail away, inflated with gas, and come back, if at all, with wonderful tales of their discoveries and of the peaks they have visited. But, alas! seen from a balloon, many peaks are alike, and one cannot verify their observations, still less follow them and make a sure path for following wayfarers. Besides which, balloons have an unfortunate tendency to be carried hither and thither or lost in the clouds, not to mention the danger of bursting; and, in fact, every path of scientific research nowadays, and most notably bacteriological research, is strewn with the carcasses of rash explorers or exploded discoveries, whose remains encumber the way and make progress difficult.

Gentlemen, I fear these discursive remarks may have been tedious, that you may think I have been too much in the vein of Polonius, as well as speaking too much of my own experience. If so, I pray you forgive me.

It would, indeed, have been easier to take some more concrete subject in medical science and to have dwelt upon it. But it seemed more fitting to say what I could of the advantages of this Society. And if so much of good appears to one who is doomed to be and to have been to so large an extent an outsider, what may not you expect to enjoy in the reality if you join this Society. I envy you the opportunity of actually linking your names and your labours with those who have been your predecessors. If I were a student again, I should esteem it my greatest privilege; and as I cannot be, let me promise that, so far as I can in any way benefit this Society, I shall reckon it an honour to do so.